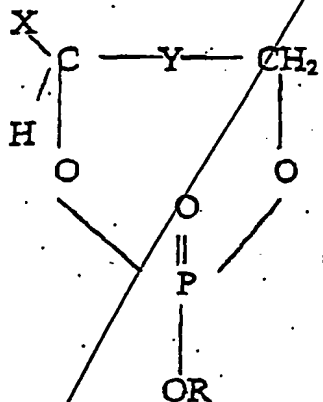


CLAIMS:

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1. A method for inducing promotion of neural cell differentiation of target cells comprising contacting said target cells for a suitable period of time with an effective amount of a compound of the general Formula I



wherein

Y is $-(CH_2)_m-$, $-CH(OH)-$ or $-C(=O)-$, and m is 0 - 3 ;

X is H, alkyl, $-CH_2OH-$, CH_2Oacyl or $-CH_2acyl$; and

R is H, a cation, alkyl or optionally substituted aryl; provided that when Y is $-(CH_2)_m-$, $m=0$, and R is H or cation, X is not CH_2Oacyl .

2. A method for promoting neural activity in an individual comprising administering to the individual in need an effective amount of a compound of the general Formula I of Claim 1.
3. A method according to Claim 2, wherein said neural activity is selected from the group consisting of promotion of neuronal outgrowth, promotion of nerve growth, provision of dopaminotrophic supporting environment in a diseased portion of the brain, prevention of nerve degeneration and nerve rescue.
4. A method for the prevention or treatment of disorders and diseases which can be prevented or treated by promoting neural cell differentiation and/or neural activity comprising administering to a person in need a therapeutically effective amount of a compound of Formula I of Claim 1.
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5. A method according to Claim 4, wherein said disorders and diseases are mental disorders or diseases.

6. A method according to Claim 5, wherein said mental disorder or disease is schizophrenia or dementia.

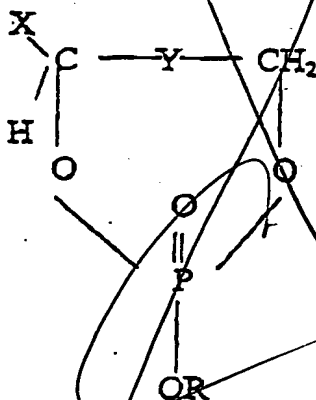
7. A method according to Claim 4, wherein said disorders and diseases are neurodegenerative disorders or diseases.

8. A method according to any one of claims 1 to 7 wherein the compound of Formula I is selected from the group consisting of:

- i. 1,3 cyclic glycerophosphate - 1,3 cGP;
- 10 ii. 1,2 cyclic glycerophosphate - 1,2 cGP;
- iii. Phenyl 1,3 cGP - P-1,3 cGP;
- iv. Phenyl 1,2 cGP - P-1,2 cGP;
- v. 1,3 cyclic propanediol phosphate - 1,3 cPP;
- vi. 1,2 cyclic propanediol phosphate - 1,2 cPP;
- 15 vii. Phenyl 1,3 cPP - P-1,3 cPP;
- viii. Phenyl 1,2, cyclic propanediol phosphate - P-1,2, cPP;
- ix. Cyclic dihydroxyacetone phosphate - cDHAP; and
- x. Phenyl cyclic dihydroxyacetone phosphate - P-cDHAP.

9. Use of a compound of the general Formula I

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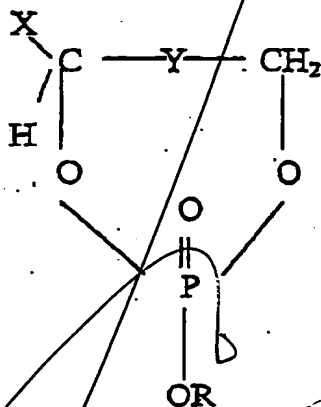
wherein

Y is $-(CH_2)_m-$, $-CH(OH)-$ or $-C(=O)-$, and m is 0 - 3 ;

X is H, alkyl, $-\text{CH}_2\text{OH}-$, CH_2Oacyl or $-\text{CH}_2\text{acyl}$; and

R is H, a cation, alkyl or optionally substituted aryl; provided that when Y is $-(\text{CH}_2)_m-$, $m=0$, and R is H or cation, X is not CH_2Oacyl for the preparation of a pharmaceutical composition for promoting neural cell differentiation.

10. Use of a compound of the general Formula I



wherein

Y is $-(\text{CH}_2)_m-$, $-\text{CH}(\text{OH})-$ or $-\text{C}(=\text{O})-$; and m is 0 - 3 ;

X is H, alkyl, $-\text{CH}_2\text{OH}-$, CH_2Oacyl or $-\text{CH}_2\text{acyl}$; and

R is H, a cation, alkyl or optionally substituted aryl; provided that when Y is $-(\text{CH}_2)_m-$, $m=0$, and R is H or cation, X is not CH_2Oacyl for the preparation of a pharmaceutical composition for promoting neural activity.

11. Use according to Claim 10, wherein said neural activity is selected from the group consisting of promotion of neuronal outgrowth, promoting of nerve growth, provision of dopaminotrophic supporting environment in a diseased portion of the brain, prevention of nerve degeneration and nerve rescue.

12. Use according to Claim 9, for the prevention or treatment of disorders and diseases which can be prevented or treated by promoting neural cell differentiation and/or neural activity.

13. Use according to Claim 12, wherein said disorders and diseases are mental disorders or diseases.

14. Use according to Claim 13, wherein said mental disorder or disease is schizophrenia or dementia.

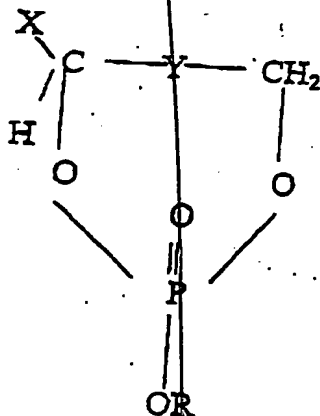
15. Use according to Claim 14, wherein said disorders and diseases are neurodegenerative disorders or diseases.

16. Use according to any one of Claims 9 to 15, wherein the compound of Formula I is selected from the group consisting of:

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- i. 1,3 cyclic glycerophosphate - 1,3 cGP;
 - ii. 1,2 cyclic glycerophosphate - 1,2 cGP;
 - iii. Phenyl 1,3 cGP - P-1,3 cGP;
 - 10 iv. Phenyl 1,2 cGP - P-1,2 cGP;
 - v. 1,3 cyclic propanediol phosphate - 1,3 cPP;
 - vi. 1,2 cyclic propanediol phosphate - 1,2 cPP;
 - vii. Phenyl 1,3 cPP - P-1,3 cPP;
 - viii. Phenyl 1,2, cyclic propanediol phosphate - P-1,2, cPP;
 - 15 ix. Cyclic dihydroxyacetone phosphate - cDHAP; and
 - x. Phenyl cyclic dihydroxyacetone phosphate - P-cDHAP.

17. A method for promoting neural activity in an individual comprising administering to the individual in need an effective amount of a compound of the general Formula I

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wherein

Y is $-(CH_2)_m-$, $-CH(OH)-$ or $-C(=O)-$, and m is 0 - 3 ;

5 X is H, alkyl, $-CH_2OH-$, CH_2Oacyl or $-CH_2acyl$; and

R is H, a cation, alkyl or optionally substituted aryl;

wherein said neural activity is selected from the group consisting of promotion of neuronal outgrowth, promotion of nerve growth, provision of dopaminotrophic supporting environment in a diseased portion of the brain, prevention of nerve
10 degeneration condition other than dementia and nerve rescue.

18. A method for the prevention or treatment of disorders and diseases, other than dementia, which can be prevented or treated by promoting neural cell differentiation and/or neural activity, the method comprising administering to a person in need a therapeutically effective amount of a compound of Formula I of
15 Claim 14.

19. A method according to Claim 18, wherein said disorders and diseases are mental disorders or diseases.

20. A method according to Claim 19, wherein said mental disorder or disease is schizophrenia.

20 21. A method according to Claim 19, wherein said mental disorder is a learning disability.

22. A method according to Claim 18, wherein said disorders and diseases are neurodegenerative disorders or diseases.

23. A method according to Claim 22, wherein said neurodegenerative disorder
25 or disease is Alzheimer's disease or Parkinson's disease.

24. A method according to Claim 17, wherein said disorders or diseases result from exposure of an individual to harmful environmental factors or from a mechanical injury.

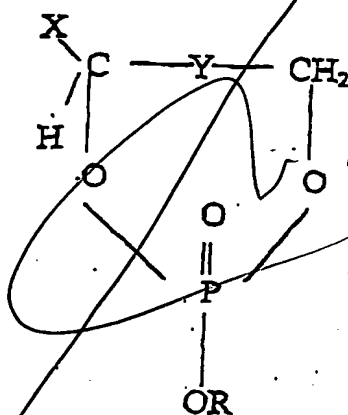
25. A method according to Claim 17, for the treatment of nerve rescue after nerve injury.

26. A method according to any one of claims 17 to 25 wherein said compound of general formula I is selected from the group consisting of

- i. 1,3 cyclic glycerophosphate - 1,3 cGP;
 - ii. 1,2 cyclic glycerophosphate - 1,2 cGP;
 - iii. 3-acyl 1,2 cyclic glycerophosphate (cyclic lysophosphatidic acid) - c-lysoPA;
 - iv. Phenyl 1,3 cGP - P-1,3 cGP;
 - 10 v. Phenyl 1,2 cGP - P-1,2 cGP;
 - vi. 1,3 cyclic propanediol phosphate - 1,3 cPP;
 - vii. 1,2 cyclic propanediol phosphate - 1,2 cPP;
 - viii. Phenyl 1,3 cPP - P-1,3 cPP;
 - ix. Phenyl 1,2, cyclic propanediol phosphate - P-1,2, cPP;
 - 15 x. Cyclic dihydroxyacetone phosphate - cDHAP; and
 - xi. Phenyl cyclic dihydroxyacetone phosphate - P-cDHAP.
27. Use of a compound of the general Formula I

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wherein

Y is $-(CH_2)_m-$, $-CH(OH)-$ or $-C(=O)-$, and m is 0 - 3 ;

X is H, alkyl, $-CH_2OH-$, CH_2Oacyl or $-CH_2acyl$; and

R is H, a cation, alkyl or optionally substituted aryl; for the preparation of a pharmaceutical composition for promoting neural activity selected from the group consisting of promotion of neuronal outgrowth, promoting of nerve growth, provision of dopaminotrophic supporting environment in a diseased portion of the brain, nerve rescue and prevention of nerve degeneration conditions other than dementia.

28. Use according to Claim 27, for the prevention or treatment of disorders and diseases, other than dementia, which can be prevented or treated by promoting neural cell differentiation and/or neural activity.
- 10 29. Use according to Claim 28, wherein said disorders and diseases are mental disorders or diseases.
30. Use according to Claim 29, wherein said mental disorder or disease is schizophrenia.
31. Use according to Claim 29, wherein said mental disorder is a learning disability.
- 15 32. Use according to Claim 28, wherein said disorders and diseases are neurodegenerative disorders or diseases.
33. Use according to Claim 32, wherein said neurodegenerative disorders or diseases are Alzheimer's disease or parkinson's disease.
- 20 34. Use according to Claim 28, wherein said disorders or diseases result from exposure of an individual to harmful environmental factors or from a mechanical injury.
35. Use according to Claim 27, for nerve rescue after nerve injury.
36. Use according to any one of claims 27 to 35 wherein said compound of formula I is selected from the group consisting of
 - i. 1,3 cyclic glycerophosphate - 1,3 cGP;
 - ii. 1,2 cyclic glycerophosphate - 1,2 cGP;
 - iii. 3-acyl 1,2 cyclic glycerophosphate (cyclic lysophosphatidic acid) - c-lysoPA;

- iv. Phenyl 1,3 cGP - P-1,3 cGP;
v. Phenyl 1,2 cGP - P-1,2 cGP;
vi. 1,3 cyclic propanediol phosphate - 1,3 cPP;
vii. 1,2 cyclic propanediol phosphate - 1,2 cPP;
s viii. Phenyl 1,3 cPP - P-1,3 cPP;
ix. Phenyl 1,2, cyclic propanediol phosphate - P-1,2, cPP;
x. Cyclic dihydroxyacetone phosphate - cDHAP; and
xi. Phenyl cyclic dihydroxyacetone phosphate - P-cDHAP.